



PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Reijo LLYKANGAS et al.

Serial No. 10/072,906

Attorney Ref. 3502-1008

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Conf. No. 3661

METAL REACTOR CELL AND
MANUFACTURING METHOD THEREOF

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action, please amend the above-identified application as follows:

IN THE ABSTRACT:

Rewrite the Abstract of the Disclosure as on the accompanying separate sheet.

IN THE CLAIMS:

Amend second claim 21 as follows:

--22. (amended) A method for manufacturing a metal reactor cell (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4, 6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) and overlapping sheets (2, 3, 4, 6,

12, 13) are joined to each other so that there are channels (9, 19) between them and the corrugated sheet (2, 3, 6, 12, 13) is joined to the overlapping sheet (2, 3, 4, 6, 12, 13) at the corrugations (31, 32, 33) by joints (5, 15) made by resistance welding so that at least some corrugations (31, 32, 33) of each corrugated sheet (2, 3, 6, 12, 13) there are joints spaced apart by intervals of 0.5 to 5 mm and/or 1-5 mm, and the number of said joints (5, 15) between each overlapping corrugated sheets (2, 3, 4, 6, 12, 13) is 10 to 1000 per cm².--

Amend claim 22 as follows:

--23. (amended) A method for manufacturing a metal reactor cell (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4, 6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) and overlapping sheets (2, 3, 4, 6, 12, 13) are joined to each other so that there are channels (9, 19) between them and a sheet (42) of the reaction cell (1, 41) is joined to the housing (7, 47) by one or several connecting grooves (43, 44, 45) on the surface of the housing (7, 47), which is such that when making the connecting groove (43, 44, 45) said connecting groove will orientate a sheet (42) of the reactor cell (41) parallel to the inside of the housing, and said sheet (42)

is also connected to the housing (7, 47) with one or several weld joints (46) made on the bottom of the connecting groove (43, 44, 45) through the housing (7, 47).--

Amend claim 23 as follows:

--24. (amended) A method for manufacturing a metal reactor (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4, 6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) overlapping sheets (2, 3, 4, 6, 12, 13) are being joined to each other so that there are channels (9, 19) between them, and the sheets (2, 3, 4, 6, 12, 13) are being preoxidized and after preoxidation they are being joined together in the joinings (31, 32, 33) of the sheets (2, 3, 4, 6, 12, 13) by joints (5, 15) made by resistance welding and/or sheets (2, 3, 4, 6, 12, 13) have been joined by joints (5, 8, 10, 15) made by resistance welding to the housing (7, 47) and/or to a part of the housing.--

Amend claim 24 as follows:

--25. (amended) A method for manufacturing a metal cell, characterized in that said reactor cell is manufactured according to claim 21.--

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Amend claim 25 as follows:

--26. (amended) The use of the reactor cell according to claim 1, characterized in that said reactor cell (1, 41, 51, 52) is used to purify combustion gases such as exhaust gases or flue gases.--

REMARKS

This amendment renumbers second claim 21 and every claim thereafter. Claims with multiple dependencies have also been corrected.

Attached hereto is a marked-up version of the changes made to the abstract and claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

This publication discloses a reactor cell useful for the treatment of gases, and the manufacturing method thereof. The corrugated sheet (2, 3, 6) of the metal reactor cell (1, 11, 41) is connected with joints (5) to another sheet (2, 3, 4, 6) to form channels (9) in the reactor cell, the number of said joints (5) at least in some part of the reactor cell (1) being 10 to 1000 per cm^3 . The reactor cell (51, 52) may be inserted into a housing (57) having conical sections. They can be joined to each other or to housing or to the part of the housing by joints made by resistance welding.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

ABSTRACT OF THE DISCLOSURE

The Abstract of the Disclosure has been amended as follows:

This publication discloses a reactor cell useful for the treatment of gases, and the manufacturing method thereof. The corrugated sheet (2, 3, 6) of the metal reactor cell (1, 11, 41) is connected with joints (5) to another sheet (2, 3, 4, 6) to form channels (9) in the reactor cell, the number of said joints (5) at least in some part of the reactor cell (1) being 10 to 1000 per cm^3 . The reactor cell (51, 52) may be inserted into a housing (57) having conical sections. They can be joined to each other or to housing or to the part of the housing by joints made by resistance welding.

[Figure 1]

IN THE CLAIMS:

Second claim 21 has been amended as follows:

--[21] 22. (amended) A method for manufacturing a metal reactor cell (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4, 6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) and overlapping sheets (2, 3, 4, 6, 12, 13) are joined to each other so that there are channels (9, 19) between them and the corrugated sheet (2, 3, 6, 12, 13) is joined to the overlapping sheet (2, 3, 4, 6, 12, 13) at the corrugations (31, 32, 33) by joints (5, 15) made by resistance welding so that at least some corrugations (31, 32, 33) of each corrugated sheet (2, 3, 6, 12, 13) there are joints spaced apart by intervals of 0.5 to 5 mm and/or 1-5 mm, and the number of said joints (5, 15) between each overlapping corrugated sheets (2, 3, 4, 6, 12, 13) is 10 to 1000 per cm³.--

Claim 22 has been amended as follows:

--[22] 23. (amended) A method for manufacturing a metal reactor cell (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4,

6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) and overlapping sheets (2, 3, 4, 6, 12, 13) are joined to each other so that there are channels (9, 19) between them and a sheet (42) of the reaction cell (1, 41) is joined to the housing (7, 47) by one or several connecting grooves (43, 44, 45) on the surface of the housing (7, 47), which is such that when making the connecting groove (43, 44, 45) said connecting groove will orientate a sheet (42) of the reactor cell (41) parallel to the inside of the housing, and said sheet (42) is also connected to the housing (7, 47) with one or several weld joints (46) made on the bottom of the connecting groove (43, 44, 45) through the housing (7, 47).--

Claim 23 has been amended as follows:

--[23] 24. (amended) A method for manufacturing a metal reactor (1, 11) comprising overlapping corrugated sheets (2, 3, 12, 13) which can have been formed for instance from a sheet strip by winding, folding, or cutting and stacking, said reactor cell (1, 11) optionally comprising other sheets (4, 6) such as flat sheets, perforated sheets, mesh sheets and/or other corrugated sheets, characterized in that said reactor cell (1, 11, 41) has a housing (7, 47) overlapping sheets (2, 3, 4, 6, 12, 13) are being joined to each other so that there are channels (9, 19) between them, and the sheets (2, 3, 4, 6, 12, 13) are being preoxidized and after preoxidation they are being joined together

in the joinings (31, 32, 33) of the sheets (2, 3, 4, 6, 12, 13) by joints (5, 15) made by resistance welding and/or sheets (2, 3, 4, 6, 12, 13) have been joined by joints (5, 8, 10, 15) made by resistance welding to the housing (7, 47) and/or to a part of the housing.--

Claim 24 has been amended as follows:

--[24] 25. (amended) A method for manufacturing a metal cell, characterized in that said reactor cell is manufactured according to [claims 21-23] claim 21.--

Claim 25 has been amended as follows:

--[25] 26. (amended) The use of the reactor cell according to [claims 1-20 or manufactured according to claims 21-24] claim 1, characterized in that said reactor cell (1, 41, 51, 52) is used to purify combustion gases such as exhaust gases or flue gases.--